

U.S. Serial No. 10/203,726
Filed: August 13, 2002
Page 2 of 18

In the Specification:

Please amend the text entitled "Summary of the Invention" beginning on page 3, line 22 and ending on page 4, line 15 as follows:

-- SUMMARY OF THE INVENTION

In accordance with the above objects and those that will be mentioned and will become apparent below, the method of detecting a trace material in a cryogenic liquid in accordance with this invention comprises the steps of (i) measuring the absorption spectrum of the cryogenic liquid by passing light in the infrared region through the cryogenic liquid, said cryogenic liquid absorption spectrum corresponding to having a first reference energy, (ii) measuring the absorption spectrum of at least one impurity alone by passing light in the infrared region through said impurity, (iii) passing a cryogenic liquid sample into a flow cell, wherein the maximum pressure drop of the cryogenic liquid sample across said flow cell is in the range of 0.5 to 5.0 lb./in.², (iv) measuring the absorption spectra of the cryogenic liquid sample by passing light in the infrared region through the cryogenic liquid sample while the cryogenic liquid sample is within the cell, (v) comparing the cryogenic liquid sample absorption spectra to the cryogenic liquid and impurity spectra, (vi) confirming the presence of the sample absorption spectrum associated with the impurity, the sample absorption spectrum associated with the impurity corresponding to having a second reference energy, and (vii) determining the concentration (C) of said impurity in the cryogenic liquid sample by the following relationship,

$$kC = \frac{\log \text{second reference energy}}{\text{first reference energy}}$$

where k is a fixed proportionality constant. --

U.S. Serial No. 10/203,726
Filed: August 13, 2002
Page 3 of 18

On page 9, lines 4-19, please amend the paragraphs as follows:

-- As stated above, the analyzer 52 of the invention is adapted to determine the presence of trace components and contaminants in the cryogenic liquid. According to the invention, the determination of a trace component or contaminant is preferably accomplished by conducting a first scan of the base cryogenic liquid to establish a first absorption spectrum having corresponding to a first reference energy (i.e., absorption energy). A second scan of at least one target material (i.e., component or contaminant) is then conducted to determine an impurity absorption spectrum associated with the target material. The first and second scans preferably comprising near infrared light in the range of 900-2200 nanometers.

The first absorption spectrum and impurity absorption spectrum (or spectra) are then stored in the processing means 54 memory. During on-line analysis, the cryogenic liquid sample is scanned while the sample is contained in a selected cell (i.e., 37, 32a, 32b) to obtain the sample absorption spectra. The sample absorption spectra are then compared to the stored absorption spectra via the processing means 54 to distinguish among and confirm the presence of the cryogenic liquid sample absorption spectrum associated with the target material, the sample absorption spectrum associated with the impurity corresponding to ~~having a~~ second reference energy. The method thus provides accurate and reliable identification of a trace material in a cryogenic liquid sample. --

On page 6, lines 3-5, please amend the paragraph as follows:

-- The terms "components", "contaminants" and "impurities", as used herein, are meant to include (i) materials having vibration energies in the range of ~~3 x 10¹⁴ - 12 x 10¹⁴ Hz~~ 1000 nm to 250 nm, (ii) materials containing OH, CH, SH, CO and SH bonds and (iii) volatile organics. --